

ABSTRACT

A process for isolating and purifying phytosterols and phytostanols from tall oil pitch is disclosed which comprises the following steps:

- a) feeding the pitch into a first distillation column;
- b) distilling the pitch to remove excess rosin acids and fatty acids to form a distilled pitch;
- c) saponifying the distilled pitch with an aqueous solution of one or more alkali metal bases to form a saponified pitch;
- d) neutralizing the saponified pitch with an amount of acid sufficient to achieve an ending pH of between 5.8 and 6.3 thereby forming a neutralized pitch;
- e) allowing the neutralized pitch to phase separate for a period of at least 12 hours or until the water content of the pitch, on phase separation, is less than 15%, thereby forming a settled pitch and a water phase;
- f) removing substantially all of the remaining water from the settled pitch to form a modified pitch;
- g) distilling the modified pitch in a second distillation column to remove lights ends from the modified pitch and to produce a bottom fraction comprising free phytosterols and/or phytostanols;
- h) distilling only the bottom fraction in a third distillation column to produce a light phase distillate comprising free phytosterols and/or phytostanols;
- i) dissolving only the light phase distillate in a solvent comprising at least one alcohol to produce a solution of phytosterols and/or phytostanols;
- j) cooling the solution to form a slurry with phytosterols and/or phytostanols crystallized

therein; and

k) washing, filtering and drying the slurry to isolate the crystallized phytosterols and/or phytostanols from the filtrate.

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